

CLAIMS

What is claimed is:

- 5 1. A switched-capacitor digital-to-analog converter comprising:
a plurality of cells, each cell comprising first and second switches switching
respective voltages from a source to a charged capacitor; and
respective switch driver circuits each in electrical communication with a
respective one of the first and second switches, each switch driver circuit applying a
10 switch control signal to the switch, the switch control signals that turn the switch on
differing to equalize the gate-to-source voltage difference.
2. The converter of claim 1, wherein the switch control signal comprises a gate voltage.
- 15 3. The converter of claim 1, wherein the first and second switches are transistor
switches.
4. The converter of claim 3, wherein the transistor switches comprise a metal-oxide-
semiconductor (MOS) device.
- 20 5. The converter of claim 1, wherein the respective switch driver circuits each comprise:
a first element receiving an external input, the first element providing an
output responsive to the received input; and
a second element in electrical communication with the first element, the
25 second element receiving the output and conditioning the output according to the
difference between the respective voltages from the source.
6. The converter of claim 5, wherein the first element is a logic gate receiving one bit of
a digital input word and a switching control signal.
- 30 7. The converter of claim 6, wherein the logic gate is a NAND gate.

8. The converter of claim 6, wherein the switching control signal is a clock signal.
9. The converter of claim 6, wherein the second element is a logic gate powered by a logic source level depending on the difference between the respective voltages from
5 the source.
10. The converter of claim 9, wherein the logic source is an inverter.
11. The converter of claim 1, further comprising respective switches coupled between adjacent cells of the plurality of cells, the switches controllably connecting the cells
10 ultimately producing an analog output corresponding to a digital input word.
12. The converter of claim 1, wherein the source comprises two emitter follower circuits and a resistor network, each coupled between electrical power and ground.
- 15 13. The converter of claim 12, wherein the emitter followers each comprises a bipolar junction transistor.
14. A method for data conversion using a switched-capacitor digital-to-analog converter comprising the steps of:
20 providing a plurality of cells, each cell comprising first and second switches switching respective different voltages from a source to a charged capacitor; and
providing respective switch driver circuits each in electrical communication with a respective one of the first and second switches;
applying respective switch control signals to each of the first and second
25 switches, the switch control signals that turn the switch on differing to equalize the gate-to-source voltage difference.